

**What IS CLAIMED IS:**

1. A torque measuring apparatus comprising:

a rotor having a hollow body portion formed between a drive-side flange portion and a load-side flange portion;

5 light emitting elements disposed on a periphery of the rotor, for emitting optical signals based on an output from a torque detection unit arranged on a hollow portion of the hollow body portion;

a diffusion means for diffusing the optical signals; and

10 a light receiving fiber attached to a chassis disposed outside the rotor, for receiving the optical signals via the diffusion portion.

2. The torque measuring apparatus according to claim 1, wherein the diffusion means comprises a diffusion plate mounted  
15 on a portion of the chassis opposing to the rotor for diffusing optical signals.

3. The torque measuring apparatus according to claim 1, wherein the diffusion means comprises a diffusion layer disposed on a surface of the light receiving fiber.

20 4. A torque measuring comprising:

a rotor having a hollow body portion formed between a drive-side flange portion and a load-side flange portion;

light emitting elements disposed on a periphery of the rotor, for emitting optical signals based on an output from a  
25 torque detection unit arranged on a hollow portion of the hollow body portion; and

a light guiding plate attached to a chassis disposed

outside the rotor, for receiving the optical signals in a planar portion thereof and guiding the optical signals along the planar portion.